

Otay River Estuary Restoration Project Final Environmental Impact Statement

Lead Agency:

U.S. Fish and Wildlife Service
San Diego National Wildlife Refuge Complex
P.O. Box 2358
Chula Vista, California 91912

Cooperating Agency:

U.S. Army Corps of Engineers

Prepared By:

DUDEK
605 Third Street
Encinitas, California 92024

FEBRUARY 2018

Printed on 30% post-consumer recycled material.

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
ACRONYMS AND ABBREVIATIONS.....	ACR-I
EXECUTIVE SUMMARY	ES-1
ES.1 Introduction.....	ES-1
ES.2 Project Description.....	ES-2
ES.3 Environmentally Preferable and Agency Preferred Alternative	ES-2
ES.4 Impacts Determined to be Significant.....	ES-3
ES.5 Impacts Not Found to be Significant	ES-21
ES.6 Areas of Known Controversy	ES-21
1 INTRODUCTION.....	1-1
1.1 Project Overview	1-1
1.2 Project Location	1-2
1.3 Project Background.....	1-2
1.4 Purpose and Need for the Action	1-15
1.4.1 Need for the Action.....	1-15
1.4.2 Purpose and Objectives.....	1-17
1.5 Project Relationship to Laws, Regulations, Executive orders, and Required Permits.....	1-17
1.5.1 Federal Laws, Regulations, and Executive Orders	1-17
1.5.2 Federal Management Plans	1-19
1.5.3 State Laws, Regulations, and Management Plans	1-19
1.5.4 Required Permits.....	1-20
1.5.5 California Environmental Quality Act.....	1-20
1.6 Public Involvement	1-21
1.6.1 Summary of Scoping.....	1-21
1.6.2 Distribution and Review of the EIS	1-23
1.7 Agency Coordination	1-24
1.8 Related Projects	1-24
1.9 Documents Incorporated by Reference.....	1-25
2 ALTERNATIVES	2-1
2.1 Overview.....	2-1
2.2 Alternatives Development Process	2-2
2.3 Alternatives Evaluated in Detail	2-3
2.3.1 Alternative A – No Action.....	2-3
2.3.2 Features Common to Both Action Alternatives.....	2-4
2.3.3 Alternative B	2-32

2.3.4	Alternative C	2-49
2.3.5	Comparison of Alternatives	2-65
2.4	Alternatives Considered but Eliminated from Detailed Analysis.....	2-67
2.4.1	Alternative Restoration Sites and Initial Restoration Concepts.....	2-67
2.4.2	Alternative Breach Site for Pond 15	2-68
2.4.3	Slurry Transport to Pond 15.....	2-69
3	AFFECTED ENVIRONMENT	3.1-1
3.1	Introduction.....	3.1-1
3.1.1	Regional and Historical Setting	3.1-1
3.2	Physical Environment	3.2-1
3.2.1	Topography/Visual Quality	3.2-1
3.2.2	Geology, Soils, and Agricultural Resources	3.2-3
3.2.3	Mineral Resources	3.2-10
3.2.4	Paleontological Resources	3.2-10
3.2.5	Hydrology and Water Quality.....	3.2-15
3.2.6	Air Quality	3.2-24
3.2.7	Noise	3.2-29
3.2.8	Climate Change and Sea-Level Rise.....	3.2-31
3.2.9	Greenhouse Gases.....	3.2-35
3.2.10	Contaminants	3.2-40
3.3	Biological Resources	3.1-1
3.3.1	Habitat and Vegetation	3.1-1
3.3.2	Wildlife and Fisheries	3.1-34
3.3.3	Endangered and Threatened Species and Other Species of Concern.....	3.1-46
3.4	Cultural Resources	3.4-1
3.4.1	Cultural Context.....	3.4-1
3.4.2	Regulatory Context	3.4-5
3.4.3	Cultural Resources in the Vicinity of the Project Site	3.4-8
3.5	Social and Economic Environment.....	3.5-1
3.5.1	Land Use	3.5-1
3.5.2	Traffic, Circulation, and Parking	3.5-8
3.5.3	Public Utilities/Easements	3.5-12
3.5.4	Public Access and Recreational Opportunities	3.5-13
3.5.5	Vectors and Odors.....	3.5-25
3.5.6	Economics/Employment	3.5-27
3.5.7	Environmental Justice	3.5-31

4	ENVIRONMENTAL CONSEQUENCES	4-1
4.1	Significance Criteria	4-2
4.2	Physical Environment	4.2-1
4.2.1	Topography/Visual Quality	4.2-1
4.2.2	Geology, Soils, and Agricultural Resources	4.2-12
4.2.3	Mineral Resources	4.2-17
4.2.4	Paleontological Resources	4.2-18
4.2.5	Hydrology and Water Quality.....	4.2-22
4.2.6	Air Quality	4.2-74
4.2.7	Noise	4.2-88
4.2.8	Climate Change/Sea-Level Rise	4.2-92
4.2.9	Greenhouse Gases.....	4.2-97
4.2.10	Contaminants	4.2-103
4.3	Biological Resources	4.3-1
4.3.1	Impacts on Habitat and Vegetation Communities, Including Jurisdictional Wetlands and Waters.....	4.3-2
4.3.2	Impacts to Endangered and Threatened Species and Other Species of Concern.....	4.3-59
4.3.3	Impacts to Wildlife and Fisheries	4.3-72
4.4	Cultural Resources	1
4.4.1	Alternative A.....	2
4.4.2	Alternative B	3
4.4.3	Alternative C.....	8
4.5	Social and Economic Environment.....	4.5-1
4.5.1	Land Use	4.5-1
4.5.2	Traffic, Circulation, and Parking	4.5-5
4.5.3	Public Utilities/Easements	4.5-11
4.5.4	Public Access and Recreational Opportunities	4.5-13
4.5.5	Vectors and Odors.....	4.5-17
4.5.6	Economics/Employment	4.5-19
4.5.7	Environmental Justice.....	4.5-21
4.6	Cumulative Impacts	4.6-1
4.6.1	Projects Considered in the Cumulative Impacts Analysis	4.6-1
4.6.2	Cumulative Impacts Analysis	4.6-6
5	COMPARISON OF EVALUATED ALTERNATIVES.....	5-1
6	OTHER SECTIONS REQUIRED BY NEPA AND/OR CEQA.....	6-1
6.1	Additional Analysis Required by NEPA	6-1
6.1.1	Unavoidable Significant Impacts	6-1

6.1.2	Irreversible and Irrecoverable Commitments of Resources	6-1
6.1.3	Short-Term Uses versus Long-Term Productivity.....	6-1
6.2	Additional Analysis Required by CEQA.....	6-2
6.3	Growth Inducement	6-2
6.4	Hazards	6-3
6.5	Energy	6-4
7	COMPLIANCE, CONSULTATION, AND COORDINATION WITH OTHERS	7-1
7.1	Compliance with Applicable Federal Laws, Regulations, Executive Orders, and Other Guidance	7-1
7.2	Required Permits or Approvals.....	7-7
7.3	Consultation and Coordination with Others	7-8
7.3.1	Public Outreach.....	7-8
7.3.2	Agency Coordination	7-10
7.4	Tribal Consultation/Coordination	7-12
8	REFERENCES CITED	8-1
9	LIST OF PREPARERS	9-1

APPENDICES (INCLUDED AS CD)

- A Response to Comments
- B Public Scoping Reports – 2011 and 2013
- C Final Restoration Plan
- D Planting Plans for Uplands
- E ORERP Construction Methodology
- F Sampling and Analysis Reports
- G Tidal Hydraulics Analysis
- H Fluvial Hydraulics Study
- I DDT Analysis
- J Biological Technical Report
- K Cultural Resources Report (Confidential)
- L Utility Investigation Report
- M Air Quality/Greenhouse Gas Output Files
- N Coastal Commission Consistency

FIGURES

1-1	Regional Map.....	1-3
1-2	Restoration Sites Vicinity Map.....	1-5
1-3	Otay River Floodplain Restoration Site Vicinity Map	1-7
1-4	Pond 15 Restoration Site Vicinity Map	1-9
2-1a	Project Features.....	2-9
2-1b	Pond 15 Levee Modification.....	2-11
2-2	Truck Haul Route.....	2-13
2-3	Staging Area.....	2-15
2-4	Conveyor Belt Haul Routes	2-21
2-5a	Alternative B – Intertidal Alternative, Otay River Site Plan	2-37
2-5b	Alternative B – Intertidal Alternative, Pond 15 Site Plan.....	2-39
2-5c	Alternative B – Intertidal Alternative, Projected 24" Sea-Level Rise, Otay River Site Plan	2-41
2-5d	Alternative B – Intertidal Alternative, Otay River Cross-Sections: 2020 and Projected 24" Sea-Level Rise (2050)	2-43
2-5e	Alternative B – Intertidal Alternative, Projected 24" Sea-Level Rise, Pond 15 Site Plan	2-45
2-5f	Alternative B – Intertidal Alternative, Pond 15 Cross-Sections: 2020 and Projected 24" Sea-Level Rise (2050)	2-47
2-6a	Alternative C – Subtidal Alternative, Otay River Site Plan.....	2-51
2-6b	Alternative C – Subtidal Alternative, Pond 15 Site Plan	2-53
2-6c	Alternative C – Subtidal Alternative, Projected 24" Sea-Level Rise, Otay River Site Plan	2-57
2-6d	Alternative C – Subtidal Alternative, Otay River Cross-Sections: 2020 and Projected 24" Sea-Level Rise (2050).....	2-59
2-6e	Alternative C – Subtidal Alternative, Projected 24" Sea-Level Rise, Pond 15 Site Plan	2-61
2-6f	Alternative C – Subtidal Alternative, Pond 15 Cross-Sections: 2020 and Projected 24" Sea-Level Rise (2050).....	2-63
3.2-1	Project Site Soils	3.2-7
3.2-2	Farmland Mapping and Monitoring Program Designations	3.2-11
3.2-3	Mineral Resource Zones	3.2-13
3.2-4	Otay River Watershed.....	3.2-17
3.2-5	Otay River Watershed Average Annual Precipitation.....	3.2-21
3.2-6	Soil Sampling Subareas – Otay River Floodplain Site	3.2-45
3.2-7	Soil Sampling Locations – Otay River Floodplain Site.....	3.2-47
3.2-8	Soil Sampling Locations – Pond 15 Site.....	3.2-51

3.3-1	Historical Condition of San Diego Bay (1859).....	3.3-3
3.3-2	Otay River Floodplain Restoration Site and Project Features Vegetation.....	3.3-7
3.3-3	Pond 15 Restoration Site and Project Features Vegetation	3.3-11
3.3-4	Project Features Vegetation	3.3-19
3.3-5	Project Features Vegetation	3.3-21
3.3-6	Otay River Floodplain Restoration Site and Project Features Jurisdictional Delineation.....	3.3-25
3.3-7	Pond 15 Restoration Site and Project Features Jurisdictional Delineation	3.3-29
3.3-8	San Diego Bay 2014 Eelgrass Survey	3.3-31
3.3-9	Project Features Jurisdictional Delineation	3.3-39
3.3-10	Project Features Jurisdictional	3.3-41
3.3-11	Nesting Locations as Described in Table 3.3-8	3.3-47
3.3-12	Otay River Floodplain Restoration Site Special-Status Plant Species.....	3.3-59
3.3-13	Pond 15 Restoration Site Special-Status Plant Species	3.3-61
3.3-14	Ponds 22 and 23 Special-Status Plant Species.....	3.3-63
3.3-15	Otay River Floodplain Site Special Status Wildlife Species	3.3-87
3.3-16	Otay River Floodplain Site Special Status Nesting Locations.....	3.3-89
3.3-17	Pond 15 Site Special Status Nesting Locations	3.3-91
3.5-1	Surrounding Land Uses in the Project Vicinity	3.5-5
3.5-2	Approximate Location of Existing Gas and Oil Pipelines.....	3.5-15
3.5-3	Approximate Location of Existing Power Utilities	3.5-17
3.5-4	Approximate Location of Existing Communications Utilities	3.5-19
3.5-5	Approximate Location of Existing Water and Storm Drain Pipelines	3.5-21
3.5-6	Approximate Location of Existing Sewer Pipelines.....	3.5-23
4.2-1	Comparison of 100-year Flood Water Elevations	4.2-25
4.2-2	100-Year Flood Impacts—Change in Maximum Water Elevations when Compared with Existing Conditions	4.2-29
4.2-3	100-Year Flood Impacts Along Bayshore Bikeway Under Alternatives B and C	4.2-31
4.2-4	15-Year and 100-Year Flood Elevations along Bayshore Bikeway	4.2-33
4.2-5	Comparison of 100-Year Flood Maximum Velocities for Intertidal Alternative	4.2-37
4.2-6	Existing and Proposed 100-Year Flood Maximum Velocity.....	4.2-39
4.2-7	Alternative B – Flood Tide Progressive Flow at Mean High Water.....	4.2-47
4.2-8	Alternative B – Ebb Tide Progressive Flow at Mean Low Water	4.2-49
4.2-9	Alternative C – Flood Tide Progressive Flow at Mean High Water.....	4.2-57
4.2-10	Alternative C – Ebb Tide Progressive Flow at Mean Low Water	4.2-59
4.3-1	Otay River Floodplain Restoration Site and Project Features Vegetation Impacts	4.3-11

4.3-2	Pond 15 Restoration Site and Project Features Vegetation Impacts.....	4.3-13
4.3-3	Project Features Vegetation Impacts Associated with Otay River Floodplain Restoration Site.....	4.3-21
4.3-4	Project Features Vegetation Impacts Associated with Pond 15 Restoration Site.	4.3-23
4.3-5	Otay River Floodplain Restoration Site and Project Features Jurisdictional Delineation Impacts	4.3-29
4.3-6	Pond 15 Restoration Site and Project Features Jurisdictional Delineation Impacts.....	4.3-31
4.3-7	Project Features Jurisdictional Delineation Impacts associated with Otay River Floodplain Restoration Site.....	4.3-37
4.3-8	Project Features Jurisdictional Impacts associated with Pond 15 Restoration Site	4.3-39

TABLES

ES-1	Summary of Significant Environmental Impacts for Alternative B and Alternative C.....	ES-4
2-1	Pond 15 Inlet/Outlet Earthwork Quantities.....	2-6
2-2	Construction Equipment Summary.....	2-28
2-3	Preliminary Construction Schedule	2-29
2-4	Species Composition and Recommended Propagation Method for Salt Marsh and Transition Zone Habitats.....	2-32
2-5	Alternative B (Intertidal) Restoration Vegetation Communities at Project Completion	2-33
2-6	Alternative B (Intertidal) 24-Inch Sea-Level Rise Variation: Otay River Floodplain Site	2-34
2-7	Alternative B (Intertidal) 24-Inch Sea-Level Rise Variation: Pond 15 Site	2-34
2-8	Alternative C (Subtidal) Restoration Vegetation Communities at Project Completion	2-49
2-9	Alternative C (Subtidal) 24-inch Sea-Level Rise Variation: Otay River Floodplain Site	2-55
2-10	Alternative C (Subtidal) Sea-Level Rise Variation: Pond 15 Site	2-55
2-11	Comparison of Earthwork Quantities	2-65
2-12	Comparison of Vegetation Communities on Otay River Floodplain Site at Project Completion	2-65
2-13	Comparison of Vegetation Communities on Pond 15 Site at Project Completion	2-66
2-14	Comparison of Vegetation Communities on the Otay River Floodplain Site in 24-Inch Sea-Level Rise Scenario.....	2-66

2-15	Comparison of Vegetation Communities on the Pond 15 Site in 24-Inch Sea-Level Rise Scenario	2-66
3.2-1	FEMA Return Period Peak Discharges for the Otay River	3.2-20
3.2-2	Ambient Air Quality Standards	3.2-25
3.2-3	San Diego Air Basin Attainment Classification	3.2-27
3.2-4	Ambient Air Quality Data.....	3.2-28
3.2-5	Frequency of Air Quality Standard Violations	3.2-29
3.2-6	Estimated 2012 Annual Average Regional Emissions Inventory for the SDAB..	3.2-29
3.2-7	Monthly Average Temperature and Precipitation for San Diego	3.2-32
3.2-8	Monthly Precipitation by Region.....	3.2-33
3.2-9	Tidal Datums for San Diego Bay at NOAA No. 941-0170 Navy Pier	3.2-34
3.2-10	GHG Sources in California.....	3.2-39
3.2-11	Average Total DDT Concentrations in the Eastern Portion of the Otay River Floodplain Site by Depth for Samples Analyzed.....	3.2-49
3.3-1	Vegetation Communities and Land Cover Types for the Otay River Floodplain Site	3.3-5
3.3-2	Vegetation Communities and Land Cover Types for the Pond 15 Site	3.3-9
3.3-3	Vegetation Communities and Land Cover Types for the Project Features	3.3-15
3.3-4	Wetland Delineation Existing Acreage Summary for the Otay River Floodplain Site	3.3-23
3.3-5	Pond 15 Site Wetland Delineation Existing Acreage Summary	3.3-28
3.3-6	Project Features Wetland Delineation Existing Acreage Summary	3.3-33
3.3-7	Results of the 2012-2013 Avian Surveys Conducted for the South San Diego Bay Unit of the San Diego Bay National Wildlife Refuge	3.3-36
3.3-8	Locations ¹ of Waterbird Nest Sites at the Salt Works Between 2006 – 2011 ²	3.3-43
3.3-9	Special-Status Plant Species Detected	3.3-49
3.3-10	Special-Status Plant Species Not Detected or with Low or No Potential to Occur on the Project Site	3.3-50
3.3-11	Special-Status Wildlife Observed or Potentially Occurring on the Otay River Floodplain Site	3.3-65
3.3-12	Special-Status Wildlife with Low Potential or No Potential to Occur on the Otay River Floodplain Site	3.3-72
3.3-13	Special-Status Wildlife Documented as Present or Potentially Occurring on the Pond 15 Site	3.3-77
3.3-14	Special-Status Wildlife with Low Potential or No Potential to Occur on the Pond 15 Site but That Have Been Recorded at the South Bay Salt Works	3.3-82
3.4-1	NRHP Eligibility Status for Cultural Resources in the Study Area.....	3.4-9
3.5-1	Surrounding Streets 2010 Average Weekday Trip Volume	3.5-10
3.5-2	Potentially Impacted Intersections within the Project Vicinity	3.5-11

3.5-3	Population Levels, Growth Rates, and Density	3.5-28
3.5-4	San Diego County, California, Personal Income, Employee Compensation, and Employment by Industry (2010)	3.5-29
3.5-5	Unemployment Rate March 2012.....	3.5-30
3.5-6	Minority Composition and Poverty Level Status (2010).....	3.5-32
XX	Environmental Fate of Herbicides Proposed For Use within the Project	
	Site (Factors Specific to Air and Water Quality).....	4.2-67
4.2-1	General Conformity De Minimis Thresholds	4.2-75
4.2-2	SDAPCD Air Quality Significance Thresholds.....	4.2-76
4.2-3	Estimated Construction Emissions –Alternative B: Truck Transport Option	4.2-80
4.2-4	Estimated Construction Emissions – Alternative B: Conveyor Belt Option	4.2-80
4.2-6	Estimated Construction Emissions – Alternative C: Truck Transport Option.....	4.2-82
4.2-7	Estimated Construction Emissions – Alternative C: Conveyor Belt Option	4.2-83
4.2-9	Construction Equipment Noise Levels	4.2-90
4.2-10	Alternative B (Intertidal) 24-inch Sea-Level Rise Variation – Otay River Floodplain Site	4.2-95
4.2-11	Alternative B (Intertidal) 24-inch Sea-Level Rise Variation – Pond 15 Site	4.2-95
4.2-12	Alternative C (Subtidal) 24-inch Sea-Level Rise Variation – Otay River Floodplain Site	4.2-96
4.2-13	Alternative C (Subtidal) Sea-Level Rise Variation – Pond 15 Site	4.2-96
4.2-14	Estimated Construction GHG Emissions: Truck Transport Option	4.2-100
4.2-15	Estimated Construction GHG Emissions: Conveyor Belt Option	4.2-100
4.2-17	Estimated Construction GHG Emissions: Truck Transport Option	4.2-102
4.2-18	Estimated Construction GHG Emissions: Conveyor Belt Option	4.2-102
4.2-20	Sensitivity Analysis of Potential DDT Deposition in Ponds 10 and 11 for Alternative A, Post-100-Year Flood	4.2-105
4.3-1	Proposed Restoration Vegetation Communities for Alternative B – 2020.....	4.3-5
4.3-2	Proposed Restoration Vegetation Communities for Alternative B – 2050.....	4.3-6
4.3-3	Summary of Impacts to Vegetation Communities and Land Cover Types at the Otay River Floodplain Site for Alternative B	4.3-7
4.3-4	Summary of Impacts to Vegetation Communities and Land Cover Types at the Pond 15 Site for Alternative B	4.3-10
4.3-5	Summary of Impacts to Vegetation Communities and Land Covers Resulting from Project Features for Alternative B	4.3-19
4.3-6	Summary of Impacts to Jurisdictional Waters at the Otay River Floodplain Site for Alternative B.....	4.3-20
4.3-7	Summary of Impacts to Jurisdictional Waters at the Pond 15 Site for Alternative B	4.3-27

TABLE OF CONTENTS

4.3-8	Determination of Mitigation Acreage Requirement for Impacts to Jurisdictional Resources.....	4.3-34
4.3-9	Summary of Impacts to Jurisdictional Waters Resulting from Project Features for Alternative B.....	4.3-36
4.3-10	Proposed Restoration Vegetation Communities for Alternative C – 2020.....	4.3-48
4.3-11	Proposed Restoration Vegetation Communities for Alternative C – 2050.....	4.3-49
4.3-12	Summary of Impacts to Vegetation Communities and Land Cover Types at the Otay River Floodplain Site for Alternative C	4.3-50
4.3-13	Summary of Impacts to Vegetation Communities and Land Cover Types at the Pond 15 Site for Alternative C	4.3-51
4.3-14	Summary of Impacts to Jurisdictional Waters at the Otay River Floodplain Site for Alternative C.....	4.3-53
4.3-15	Summary of Impacts to Jurisdictional Waters at the Pond 15 Site for Alternative C	4.3-54
4.3-16	Determination of Mitigation Acreage Requirements for Impacts to Jurisdictional Resources from Alternative C	4.3-56
4.3-17	Existing Salinity Gradient; Pre-restoration Configuration of Salt Ponds	4.3-63
4.5-1	Consistency with San Diego Bay NWR Comprehensive Conservation Plan.....	4.5-2
4.5-2	Alternative B Maximum Daily Trip Generation.....	4.5-6
4.5-3	Alternative C Maximum Daily Trip Generation.....	4.5-10
5-1	Summary of Potentially Significant Impacts of Alternatives	5-2
7-1	NRHP Eligibility Status for Cultural Resources within the Project Area	7-12

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
µg/kg	micrograms per kilogram
°F	degrees Fahrenheit
°C	degrees Celsius
ADT	average daily traffic
APE	area of potential effects
Basin Plan	Water Quality Control Plan for the San Diego Basin
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAP	Contaminants Assessment Process
CARB	California Air Resources Board
CCP	Comprehensive Conservation Plan
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH ₄	methane
cm	centimeters
Commission	California Coastal Commission
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ E	carbon dioxide equivalent
Corps	U.S. Army Corps of Engineers
CRAM	California Rapid Assessment Method
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DDT	dichlorodiphenyltrichloroethane
DO	dissolved oxygen
DPS	Distinct Population Segment
dw	dry weight
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ERL	effects range low
ERM	effects range median
ERC	Exposure Reduction Cover
FEMA	Federal Emergency Management Agency
FRP	Final Restoration Plan

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ft/s	feet per second
G	acceleration due to gravity
GHG	greenhouse gas
GWP	global warming potential
H ₂ O	water (vapor)
HALS	Historic American Landscape Survey
I-5	Interstate 5
INRMP	Integrated Natural Resources Management Plan
kV	kilovolt
LOS	level of service
ORERP	Otay River Estuary Restoration Project
m/sec	meters per second
mg/L	milligrams per liter
MHPA	Multi-Habitat Planning Area
MLLW	mean lower low water
MLMP	Marine Life Mitigation Plan
MM	Mitigation Measure
mm/year	millimeters per year
MMT CO ₂ E	million metric tons carbon dioxide equivalent
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MSCP	Multiple Species Conservation Program
MT	metric ton
MTS	Metropolitan Transit System
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAVD 88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NF ₃	nitrogen trifluoride
NHPA	National Historic Preservation Act
NMFS	DO NOT USE - see NOAA Fisheries
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
O ₃	ozone
ORERP	Otay River Estuary Restoration Project
OVRP	Otay Valley Regional Park
PAH	polycyclic aromatic hydrocarbons

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
PCB	polychlorinated biphenyls
PL	Public Law
PM ₁₀	coarse particulate matter
PM _{2.5}	fine particulate matter
PMP	Port Master Plan
Poseidon	Poseidon Resources (Channelside) LP
Port	San Diego Unified Port District
ppb	parts per billion
ppm	parts per million
ppt	parts per thousand
RAQS	Regional Air Quality Strategy
Regional Board	San Diego Regional Water Quality Control Board

INTENTIONALLY LEFT BLANK